

IN THE CLAIMS:

1. (Previously Presented) A display unit having a coherent light scanning system for scanning coherent light, and projecting the coherent light onto a screen, said coherent light scanning system comprising:

a coherent light generator for receiving a coherent light generation signal and for outputting coherent light;

a polygon mirror for receiving the coherent light from the coherent light generator and for reflecting the coherent light to be projected on the screen; and

an optical path formation part for receiving the coherent light from the polygon mirror and transmitting the coherent light onto the screen, such that each reflection plane of the polygon mirror corresponds to multiple scans of coherent light on the screen and at least one change in a scanning direction of the coherent light on the screen during each rotation of the polygon mirror,

wherein the scanning direction of coherent light on the screen changes corresponding to an angle of the polygon mirror relative to the coherent light received at the polygon mirror, and

the coherent light generator signal corresponds to a string of data, the string of data being read in a first direction corresponding to a first scan direction of coherent light on the screen, and being read in a reverse direction corresponding to a second scan direction of coherent light on the screen.

2. (Cancelled)

3. (Currently Amended) A display unit as defined in Claim [[2]] 1 wherein said optical path formation part comprises at least one reflection mirror for reflecting the coherent light from the polygon mirror.

4. (Previously Presented) A display unit as defined in Claim 3 wherein said reflection mirror is for reflecting the coherent light from the polygon mirror while the rotation angle of the polygon mirror is within a predetermined range.

5. (Previously Presented) A display unit as defined in Claim 4 wherein the optical path formation part comprises a plurality of said reflection mirrors.

6. (Previously Presented) A display unit as defined in Claim 5 wherein  
said plural reflection mirrors are two mirrors, each having a reflection surface opposite the other; and

said two reflection mirrors are located so that the coherent light from a single reflection surface of the polygon mirror is reflected off of each of the reflection surfaces of the two reflection mirrors and passes through a space between the two reflection mirrors, respectively, and

each of (1) the coherent light reflected from each of the reflection surfaces of the two reflection mirrors, and (2) the coherent light that passes between the two reflection mirrors, generates a scan on the screen, and each of the scans has substantially the same width on the screen.

7. (Original) A display unit as defined in Claim 6 wherein said reflection mirrors multiple-reflect the coherent light.
8. (Previously Presented) A display unit as defined in Claim 6 wherein said two reflection mirrors are rotatable about an axis that is perpendicular to the scanning direction of the coherent light.
9. (Withdrawn and Currently Amended) A display unit as defined in Claim 1, further comprising ~~wherein said optical path formation part has~~ a high-speed deflector for deflecting a single beam of coherent light ~~applied to one reflection plane of the polygon mirror~~ from the coherent light generator to generate plural beams, and for outputting the plural beams to the polygon mirror.
10. (Withdrawn) A display unit as defined in Claim 9 wherein said high-speed deflector comprises an EO (Electro Optical) deflection device.
11. (Withdrawn and Currently Amended) A display unit as defined in Claim 9 wherein said high-speed deflector deflects the coherent light along ~~the~~ a direction that is approximately perpendicular to the scanning direction of the polygon mirror.

12. (Currently Amended) A display unit as defined in Claim 1 wherein said optical path formation part includes a free-form surface mirror ~~which is disposed~~ located on a path of reflected light from the polygon mirror, and has at least one reflection plane of free-form surface shape.

13. (Original) A display unit as defined in Claim 12 wherein said free-form surface mirror has two or more reflection planes.

14. (Original) A display unit as defined in Claim 13 wherein said reflection planes include first and third reflection planes of free-form surface shapes, and a second reflection plane of planar shape, which is sandwiched between the first and third reflection planes.

15. (Original) A display unit as defined in Claim 14 wherein said first to third reflection planes are shaped such that the respective coherent light beams applied to the first to third reflection planes scan the same range on the screen.

16. (Cancelled)

17. (Cancelled)

18. (Currently Amended) A coherent light scanning method for performing scanning with coherent light on a screen, comprising:

generating coherent light;  
reflecting the coherent light from a polygon mirror;  
rotating the polygon mirror to generate a scan on the screen by the coherent light  
reflected from the polygon mirror; and  
manipulating an optical path of the coherent light from the polygon mirror so that each  
reflection plane of the polygon mirror corresponds to a plurality of scans on the screen, the scans  
moving in a plurality of directions across the screen during each rotation of the polygon mirror.

19. (Previously Presented) A coherent light scanning method according to claim 18, wherein  
at least one mirror which is located on the optical path of reflected light from the polygon  
mirror to the screen, for manipulating the optical path of the coherent light from the polygon  
mirror.

20. (Cancelled)

21. (Cancelled)